



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/810,433

03/26/2004

Min Chuin Hoo

15575US02

9795

23446 7590 03/18/2008
MCANDREWS HELD & MALLOY, LTD
500 WEST MADISON STREET
SUITE 3400
CHICAGO, IL 60661

EXAMINER

CHOW, CHARLES CHIANG

ART UNIT

PAPER NUMBER

2618

MAIL DATE

DELIVERY MODE

03/18/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/810,433	Applicant(s) HOO ET AL.	
	Examiner Charles Chow	Art Unit 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 11-19, 22-30, 33, 36-50 is/are pending in the application.
- 4a) Of the above claim(s) 9, 10, 20, 21, 31, 32, 34 and 35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 11-19, 22-30, 33, 36-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

1. This office action is for the amendment filed on 1/21/2008.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 5-6, 12, 16-17, 23, 27-28, 36-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menich et al. [US 4,704,734] in view of Iguchi et al. [US 6839,550 B2] and Matsui et al. [US 6,907,094 B2].

For claim 1, Menich et al. [Menich] teaches a method for controlling an antenna system [the method steps for antenna selection in Fig. 20a/20b, in a cellular system, col. 3, lines 1-12; abstract & Fig. 10-19], the method comprising

collecting information associated with at least one of a plurality of samples received by a portion of a plurality of antennas [the sequentially sampled signal strength in abstract; the storing of digital representation of the signal strength/rf energy data into storage location for the measurement on primary sector antenna, & also on its adjacent left, right, sector antennas, as the portion of a plurality sector antennas, col. 2, line 54 to col. 3, line 12; col. 11, line 31 to col. 12, line 38 , Fig. 17] ; and

determining at least one starting antenna from said plurality of antennas based on said collected information received by said portion of said plurality of antennas [the recalling of the stored digital representation & the strongest signal along with an identification of receiving antenna, as the starting antenna, are determined in abstract, the starting antenna

Art Unit: 2618

in col. 13, line 5-59; from a portion of the plurality sector antennas, primary, left, right antennas, col. 3, lines 1-12; the pass count N checkup in step 2018 for the looping back to step 2006, to control the number of cycles, two, four, for storing the measured RSSI into bins at step 2010 & the increment antenna number at step 2012 in Fig. 20a; the programming of the antenna selection to the strongest signal receiving antenna at step 2026 in Fig. 20b, col. 13, lines 19-59].

Menich fails to teach the selecting a starting antenna by using the majority polling scheme.

Iguchi et al. [Iguchi] teaches the selecting a starting antenna by using the majority polling scheme [the antenna selection of antenna ANT(K) is based on the majority decision, the greater number of times of an antenna being used previously for receiving than with the other antenna, steps S12 to S18 in Fig. 5, col. 5, lines 17-44; the selecting an optimum antenna from then number of antennas in col. 5, lines 40-44; for computer program application in col. 2, lines 45-48], in order to reliably select an antenna based on the majority decision for selecting an antenna having a greater number of times being used before. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Menich's antenna selection with Iguchi's majority decision such that the antenna selection could be reliably performed, according to a greater number of times an antenna being used before.

Menich, Iguchi fail to teach the determining at least one starting antenna by using the weighted sum filtering scheme, wherein said weighted sum filtering scheme utilizes a plurality of different weighting factors.

Matsui et al. [Matsui] teaches the determining at least one starting antenna by using the weighted sum filtering scheme, wherein said weighted sum filtering scheme utilizes a

plurality of different weighting factors [the digital matches filter 16 is performing the summing, at 26, of the weighted delayed data multiplied by plurality of coefficients, the weighting factors, a_0 to a_{n-1} , $25-1$ to $25-n$ as shown in Fig. 2 & col. 3, line 36 to col. 4, line 2; the antenna selection via controlled switch 13, abstract,/summary of invention, Fig. 1 & corresponding description in the specification], such that the interference signal could be removed by filtering, to improve the antenna selection. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Menich, Iguchi with Matsui's filtering with weighted sum for the antenna selection, such the interference signal could be removed by filtering, to improve the antenna selection.

For claims 5, 16, 27, Menich teaches receiving, measuring, signal on said portion of a plurality antennas [primary, left, right, sector antennas]. Menich, Iguchi fail to teach the collecting at least one of a plurality of selection metrics associated with said at least one of said plurality of frames received.

Matsui teach the collecting at least one of a plurality of selection metrics associated with said at least one of said plurality of frames received [the plurality of metrics associated with frame, such as the peak level associated with maximum correlation, the BER can be found using estimated SNR, the superior interference resistance of the receiving device, col. 4, lines 29-46], in order to control antenna selection according to the metrics, as the rationale to combine Matsui to Menich, Iguchi.

For claims 6, 17, 28, Menich, Iguchi fail to teach the wherein said at least one or more of a plurality of selection metrics comprises one or more of a power estimation, a signal to noise ratio, a bit error rate a channel interference level.

Matsui teaches the wherein said at least one or more of a plurality of selection metrics comprises one or more of a power estimation, a signal to noise ratio, a bit error rate a

Art Unit: 2618

channel interference level [the plurality of metrics associated with frame, such as the peak level associated with maximum correlation, the BER can be found using estimated SNR, the superior interference resistance of the receiving device, col. 4, lines 29-46], in order to control antenna selection according to the metrics, as the rationale to combine Matsui to Menich, Iguchi.

For claim 12, Menich teaches a machine-readable storage having executable code stored thereon, a computer program having at least one code section for controlling an antenna system [the microprocessor MC6809 provides controls according to the stored programmed steps, code section, in RAM & EPROM, the integral microcomputer of the signal strength detector in col. 10, line 63 to col. 11, line 30; & microprocessor 1302 reads & processes the retrieved signal strength information in col. 12, line 12, line 36 & line 54],

at least one code section being executable by a machine for causing the machine to perform steps [the code section in steps in Fig. 20a to Fig. 21 & code section for the functions performed in Fig. 17] comprising

collecting information associated with at least one of a plurality of samples received by a portion of a plurality of antennas [the sequentially sampled signal strength in abstract; the storing of the digital representation of the signal strength/rf energy data into storage locations for the measurement on primary sector antenna & its adjacent left, right, sector antennas, as the portion of a plurality sector antennas, col. 2, line 54 to col. 3, line 12; col. 11, line 31 to col. 12, line 38 , Fig. 17] ; and

determining at least one starting antenna from said plurality of antennas based on said collected information received by said portion of said plurality of antennas [the recalling of the stored digital representation, & the strongest signal along with an identification of

Art Unit: 2618

receiving antenna, as the starting antenna, are determined in abstract, from a portion of the plurality sector antennas, primary, left, right antennas, col. 3, lines 1-12].

Menich fails to teach the selecting a starting antenna by using the majority polling scheme.

Iguchi teaches the selecting a starting antenna by using the majority polling scheme [the antenna selection of antenna ANT(K) is based on the majority decision, the greater number of times of an antenna being used previously for receiving than with the other antenna, steps S12 to S18 in Fig. 5, col. 5, lines 17-44; the selecting an optimum antenna from then number of antennas in col. 5, lines 40-44; for computer program application in col. 2, lines 45-48], in order to reliably select an antenna based on the majority decision for selecting an antenna having a greater number of times being used before. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve Menich's antenna selection with Iguchi's majority decision such that the antenna selection could be reliably performed, according to a greater number of times an antenna being used before.

Menich, Iguchi fail to teach the determining at least one starting antenna by using the weighted sum filtering scheme, wherein said weighted sum filtering scheme utilizes a plurality of different weighting factors.

Matsui teaches the determining at least one starting antenna by using the weighted sum filtering scheme, wherein said weighted sum filtering scheme utilizes a plurality of different weighting factors [the digital matches filter 16 is performing the summing, at 26, of the weighted delayed data multiplied by plurality of coefficients, the weighting factors, a_0 to a_{n-1} , 25-1 to 25-n as shown in Fig. 2 & col. 3, line 36 to col. 4, line 2; the antenna selection via controlled switch 13, abstract,/summary of invention, Fig. 1 & corresponding description in

the specification], such that the interference signal could be removed by filtering, to improve the antenna selection. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Menich, Iguchi with Matsui's filtering with weighted sum for the antenna selection, such the interference signal could be removed by filtering, to improve the antenna selection.

For claim 23, Menich teaches a system for controlling an antenna system [col. 4, lines 10-13, Fig. 10 to Fig.19], the system comprising

a processor [1302, col. 8, lines 46-57; col. 12, line 12, line 36 & line 54] collecting information associated with at least one of a plurality of samples received by a portion of a plurality of antennas [the sequentially sampled signal strength in abstract; the storing of the digital representation of the signal strength/rf energy data into storage locations for the measurement on primary sector antenna & its adjacent left, right, sector antennas, as the portion of a plurality sector antennas, col. 2, line 54 to col. 3, line 12; col. 11, line 31 to col. 12, line 38 , Fig. 17] ; and

a processor [1302] determining at least one starting antenna from said plurality of antennas based on said collected information received by said portion of said plurality of antennas [the recalling of the stored digital representation, & the strongest signal along with an identification of receiving antenna, as the starting antenna, are determined in abstract, from a portion of the plurality sector antennas, primary, left, right antennas, col. 3, lines 1-12].

Menich fails to teach the selecting a starting antenna by using the majority polling scheme.

Iguchi teaches the selecting a starting antenna by using the majority polling scheme [the antenna selection of antenna ANT(K) is based on the majority decision, the greater

number of times of an antenna being used previously for receiving than with the other antenna, steps S12 to S18 in Fig. 5, col. 5, lines 17-44; the selecting an optimum antenna from then number of antennas in col. 5, lines 40-44; for computer program application in col. 2, lines 45-48], in order to reliably select an antenna based on the majority decision for selecting an antenna having a greater number of times being used before. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve Menich's antenna selection with Iguchi's majority decision such that the antenna selection could be reliably performed, according to a greater number of times an antenna being used before.

Menich, Iguchi fail to teach the determining at least one starting antenna by using the weighted sum filtering scheme, wherein said weighted sum filtering scheme utilizes a plurality of different weighting factors.

Matsui teaches the determining at least one starting antenna by using the weighted sum filtering scheme, wherein said weighted sum filtering scheme utilizes a plurality of different weighting factors [the digital matches filter 16 is performing the summing, at 26, of the weighted delayed data multiplied by plurality of coefficients, the weighting factors, a_0 to a_{n-1} , 25-1 to 25-n as shown in Fig. 2 & col. 3, line 36 to col. 4, line 2; the antenna selection via controlled switch 13, abstract,/summary of invention, Fig. 1 & corresponding description in the specification], such that the interference signal could be removed by filtering, to improve the antenna selection. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Menich, Iguchi with Matsui's filtering with weighted sum for the antenna selection, such the interference signal could be removed by filtering, to improve the antenna selection.

For claim 36, Menich teaches a method for controlling an antenna system [the method steps for antenna selection in Fig. 20a/20b, in a cellular system, col. 3, lines 1-12; abstract & Fig. 10-19], the method comprising

collecting information associated with at least one of a plurality of samples received by a portion of a plurality of antennas [the sequentially sampled signal strength in abstract; the storing of digital representation of the signal strength/rf energy data into storage location for the measurement on primary sector antenna, & also on its adjacent left, right, sector antennas, as the portion of a plurality sector antennas, col. 2, line 54 to col. 3, line 12; col. 11, line 31 to col. 12, line 38 , Fig. 17] ; and

determining at least one starting antenna from said plurality of antennas based on said collected information received by said portion of said plurality of antennas [the recalling of the stored digital representation & the strongest signal along with an identification of receiving antenna, as the starting antenna, are determined in abstract, the starting antenna in paragraph for col. 13, line 6; from a portion of the plurality sector antennas, primary, left, right antennas, col. 3, lines 1-12; the pass count N checkup in step 2018 for the looping back to step 2006, to control the number of cycles, two, four, for storing the measured RSSI into bins at step 2010 & the increment antenna number at step 2012 in Fig. 20a; the programming of the antenna selection to the strongest signal receiving antenna at step 2026 in Fig. 20b, col. 13, lines 19-59].

Menich fails to teach the selecting a starting antenna by using the majority polling scheme.

Iguchi teaches the selecting a starting antenna by using the majority polling scheme [the antenna selection of antenna ANT(K) is based on the majority decision, the greater number of times of an antenna being used previously for receiving than with the other

antenna, steps S12 to S18 in Fig. 5, col. 5, lines 17-44; the selecting an optimum antenna from then number of antennas in col. 5, lines 40-44; for computer program application in col. 2, lines 45-48], in order to reliably select an antenna based on the majority decision for selecting an antenna having a greater number of times being used before. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve Menich's antenna selection with Iguchi's majority decision such that the antenna selection could be reliably performed, according to a greater number of times an antenna being used before.

Menich, Iguchi fail to mention the antenna for receiving a plurality of frames.

Matsui teaches the antenna can receive a plurality of frames [the antenna received frame is in the format shown in Fig. 3, col. 4, lines 3-27], in order to upgrade the receiver for operating on the received frame. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Menich, Iguchi with Matsui's received frames on antennas, such that the receiver could be upgraded for operating on the received frames.

For claims 37, 42, 47, Menich fails to teach the selecting said determined at least one starting antenna based on the number of times said determined at least one starting antenna has been previously selected, when utilizing said majority polling scheme.

Iguchi the selecting said determined at least one starting antenna based on the number of times said determined at least one starting antenna has been previously selected, when utilizing said majority polling scheme [the antenna selection of antenna ANT(K) is based on the majority decision, the greater number of times of an antenna being used previously for receiving than with the other antenna, steps S12 to S18 in Fig. 5, col. 5, lines 17-44; the selecting an optimum antenna from then number of antennas in col. 5, lines 40-44; for

computer program application in col. 2, lines 45-48], in order to reliably select an antenna based on the majority decision for selecting an antenna having a greater number of times being used before. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve Menich's antenna selection with Iguchi's majority decision such that the antenna selection could be reliably performed, according to a greater number of times an antenna being used before.

Menich, Iguchi fail to teach the determined at determined at least one starting antenna based on the over a predetermined number of said received plurality of frames.

Matsui teach the determined at determined at least one starting antenna based on the over a predetermined number of said received plurality of frames [the received plurality of frames for the averaging, for the antenna diversity selection, in col. 4, lines 3-27], such that the starting antenna selection is based on the number of times the antenna being previously selected over the plurality of frames.

For claims 38,43, 48, (previously presented) The method according to claim 1, comprising

Menich, Iguchi fail to teach the different weighting factors and determined number of said plurality of frames.

Matsui teaches the generating said plurality of different weighting factors based on one or both of a selected filtering format [the digital match filter 16, the weighted delayed data multiplied by plurality of coefficients, the weighting factors, a_0 to a_{n-1} , 25-1 to 25-n as shown in Fig. 2 & col. 3, line 36 to col. 4, line 2; the antenna selection via controlled switch 13, abstract, summary of invention, Fig. 1 & corresponding description in the specification],

a determined number of said plurality of frames received by said portion of said plurality of antennas [the received plurality of frames for the averaging, for the antenna diversity

selection, in col. 4, lines 3-27], in order to upgrade the receiver for operating on the received frame. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Menich, Iguchi with Matsui's received frames on antennas, such that the receiver could be upgraded for operating on the received frames.

For claims 39, 44, 49, Menich teaches the wherein said collected information is collected received signal power information [the sequentially sampled signal strength in abstract; the storing of digital representation of the signal strength, signal power, into storage location for the measurement on primary sector antenna, & also for the adjacent left, right, sector antennas, col. 2, line 54 to col. 3, line 12; col. 11, line 31 to col. 12, line 38 , Fig. 17].

For claims 40, 45, 50, Menich, Iguchi fail to teach the filtering associated with the different weighting factors.

Matsui teaches the filtering said collected received signal power information based on said plurality of different weighting factors when utilizing said weighted sum filtering scheme [the filter 16 in Fig. 2 utilizing plurality of coefficients a_0 to a_{n-1} , as the weighting factors, to be added at 26, col. 3, line 36 to col. 4, line 2], in order to select an antenna according to the different weight factors to improve the antenna selection, as the rationale to combine Matsui to Menich, Iguchi.

For claim 41, Menich teaches a machine-readable storage having executable code stored thereon, a computer program having at least one code section for controlling an antenna system [the microprocessor MC6809 provides controls according to the stored programmed steps, code section, in RAM & EPROM, the integral microcomputer of the signal strength detector in col. 10, line 63 to col. 11, line 30; & microprocessor 1302 reads & processes the retrieved signal strength information in col. 12, line 12, line 36 & line 54],

Art Unit: 2618

at least one code section being executable by a machine for causing the machine to perform steps [the code section in steps in Fig. 20a to Fig. 21 & code section for the functions performed in Fig. 17] comprising

collecting information associated with at least one of a plurality of samples received by a portion of a plurality of antennas [the sequentially sampled signal strength in abstract; the storing of digital representation of the signal strength/rf energy data into storage location for the measurement on primary sector antenna, & also on its adjacent left, right, sector antennas, as the portion of a plurality sector antennas, col. 2, line 54 to col. 3, line 12; col. 11, line 31 to col. 12, line 38 , Fig. 17]; and

determining at least one starting antenna from said plurality of antennas based on said collected information received by said portion of said plurality of antennas [the recalling of the stored digital representation & the strongest signal along with an identification of receiving antenna, as the starting antenna, are determined in abstract, the starting antenna in paragraph for col. 13, line 6; from a portion of the plurality sector antennas, primary, left, right antennas, col. 3, lines 1-12; the pass count N checkup in step 2018 for the looping back to step 2006, to control the number of cycles, two, four, for storing the measured RSSI into bins at step 2010 & the increment antenna number at step 2012 in Fig. 20a; the programming of the antenna selection to the strongest signal receiving antenna at step 2026 in Fig. 20b, col. 13, lines 19-59].

Menich fails to teach the selecting a starting antenna by using the majority polling scheme.

Iguchi teaches the selecting a starting antenna by using the majority polling scheme [the antenna selection of antenna ANT(K) is based on the majority decision, the greater number of times of an antenna being used previously for receiving than with the other

antenna, steps S12 to S18 in Fig. 5, col. 5, lines 17-44; the selecting an optimum antenna from then number of antennas in col. 5, lines 40-44; for computer program application in col. 2, lines 45-48], in order to reliably select an antenna based on the majority decision for selecting an antenna having a greater number of times being used before. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve Menich's antenna selection with Iguchi's majority decision such that the antenna selection could be reliably performed, according to a greater number of times an antenna being used before.

Menich, Iguchi fail to mention the antenna for receiving a plurality of frames.

Matsui teaches the antenna can receive a plurality of frames [the antenna received frame is in the format shown in Fig. 3, col. 4, lines 3-12], in order to upgrade the receiver for operating on the received frame. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Menich, Iguchi with Matsui's received frames on antennas, such that the receiver could be upgraded for operating on the received frames.

For claim 46, Menich teaches a system for controlling an antenna system [the method steps for antenna selection in Fig. 20a/20b, in a cellular system, col. 3, lines 1-12; abstract & Fig. 10-19], the method comprising

a processor [the microprocessor 1302 reads & processes the retrieved signal strength information in col. 12, line 12, line 36 & line 54] collects information associated with at least one of a plurality of samples received by a portion of a plurality of antennas [the sequentially sampled signal strength in abstract; the storing of digital representation of the signal strength/rf energy data into storage location for the measurement on primary sector

Art Unit: 2618

antenna, & also on its adjacent left, right, sector antennas, as the portion of a plurality sector antennas, col. 2, line 54 to col. 3, line 12; col. 11, line 31 to col. 12, line 38 , Fig. 17] ; and

a processor [the microprocessor 1302 reads & processes the retrieved signal strength information in col. 12, line 12, line 36 & line 54] determines at least one starting antenna from said plurality of antennas based on said collected information received by said portion of said plurality of antennas [the recalling of the stored digital representation & the strongest signal along with an identification of receiving antenna, as the starting antenna, are determined in abstract, the starting antenna in paragraph for col. 13, line 6; from a portion of the plurality sector antennas, primary, left, right antennas, col. 3, lines 1-12; the pass count N checkup in step 2018 for the looping back to step 2006, to control the number of cycles, two, four, for storing the measured RSSI into bins at step 2010 & the increment antenna number at step 2012 in Fig. 20a; the programming of the antenna selection to the strongest signal receiving antenna at step 2026 in Fig. 20b, col. 13,lines 19-59].

Menich fails to teach the selecting a starting antenna by using the majority polling scheme.

Iguchi teaches the selecting a starting antenna by using the majority polling scheme [the antenna selection of antenna ANT(K) is based on the majority decision, the greater number of times of an antenna being used previously for receiving than with the other antenna, steps S12 to S18 in Fig. 5, col. 5, lines 17-44; the selecting an optimum antenna from then number of antennas in col. 5, lines 40-44; for computer program application in col. 2, lines 45-48], in order to reliably select an antenna based on the majority decision for selecting an antenna having a greater number of times being used before. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve Menich's antenna selection with Iguchi's majority decision such that the

Art Unit: 2618

antenna selection could be reliably performed, according to a greater number of times an antenna being used before.

Menich, Iguchi fail to mention the antenna for receiving a plurality of frames.

Matsui teaches the antenna can receive a plurality of frames [the antenna received frame is in the format shown in Fig. 3, col. 4, lines 3-12], in order to upgrade the receiver for operating on the received frame. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Menich, Iguchi with Matsui's received frames on antennas, such that the receiver could be upgraded for operating on the received frames.

4. Claims 2-3, 13-14, 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menich, Iguchi in view of Matsui, as applied to claims 1, 12, 23 above, and further in view of Xu [US 2004/0203,550 A1].

For claims 2, 13, 24, Menich, Iguchi, Matsui fail to teach which portion for the wherein said portion of a plurality of antennas are receiving antennas and a remaining portion of said plurality of antennas are transmitting antennas.

Xu teaches these features [the Vant_1 to Vant_M, Vtx, Vrx are the antenna control signals for selecting antenna portion for receiver 204 and remaining antenna portion for transmitter 202, abstract, paragraph 0012], to improve the antennas switching, for sharing antennas to a receiver & a transmitter by the simple, low loss, high isolation, diode switching circuit [0002]. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Menich, Iguchi, Matsui with Xu's antenna switching, in order to improve antenna switching with the better switches, simple, low loss, high isolation.

For claims 3, 14, 25, Menich teaches the method comprising selecting said at least one starting antenna from said receiving antennas [the selecting of one receiving, starting, antenna from primary, left, right sector antennas abstract, col. 3, lines 1-12; the code for steps executed by microprocessor 1320, Fig. 20a-21 for measurement process and antenna selection process, col. 4, lines 1-6].

5. Claims 4, 15, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menich in view of Iguchi, Matsui, Xu, as applied to claims 2, 13, 24 above, and further in view of Akerberg [US 6,553,078 B1].

For claims 4, 15, 26, Menich, Iguchi, Matsui, Xu fail to teach the selecting said at least one starting antenna from transmitting antennas.

Akerberg teaches the selecting said at least one starting antenna from said transmitting antennas [the selecting a starting antenna from antennas A1, A2 for transmitting next down link burst, in col. 4, lines 51-56; the code section for steps in Fig. 6 & the processor executes program for CU-BS & P-BS in col. 4, lines 12-16], the antenna selection based on the previously stored BER data, threshold, col. 4, lines 27-56], in order to select best antenna based on the stored BER data. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Menich, Iguchi, Matsui, Xu with Akerberg's BER of uplink frames, in order to improve the quality of the uplink frames with better BER via a selected antenna.

6. Claims 7, 18, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menich in view of Iguchi, Matsui, as applied to claims 5, 16, 27 above, and further in view of Lyons et al. [US 2005/0095,987 A1].

For claims 7, 18, 29, Menich, Iguchi, Matsui fail to teach the selecting at least one metric from plurality of selection metrics.

Lyons et al. [Lyons] teaches the selecting at least one of said at least one of a plurality of selection metrics to determine said at least one starting antenna [the antenna selection based on the signal power Rssi or based on the relative error vector magnitude EVM associated with error distance in paragraph 0116-0117, abstract, Fig. 1; the processor 735 executes program stored in memory 737, paragraph 0040-0041, the executed instruction & program code in paragraph 0140-0141], in order to select one antenna based on different metrics to improve the signal quality. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Menich, Iguchi, Matsui with Lyons' Rssi, EVM, in order to improve the quality with rssi or EVM.

7. Claims 8, 19, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menich in view of Iguchi, Matsui, as applied to claims 1, 12, 23 above, and further in view of Rozanski [US 5,530,926].

For claims 8, 19, 30, Menich, Iguchi, Matsui fail to teach the features for this claim. Rozanski teaches the selecting at least one of said at least one of a plurality of frames to determine said at least one starting antenna [the code steps 63-65, the measuring first, second half of slot N-1, col. 4, lines 16-37 & in a frame in col. 4, lines 63-67, for accurately determine the signal power level, for next starting antenna selection], in order to accurately controlling the starting antenna selection by measuring the power in two halves of a slot. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Menich, Iguchi, Matsui with Rozanski's two half power of a

Art Unit: 2618

slot in a frame for the determining of the antenna selection, in order to accurately control the antenna selection based on the measured power for two halves of a time slot of a frame.

8. Claims 11, 22, 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menich in view of Iguchi, Ishihara, as applied to claims 1, 12, 23 above, and further in view of Banister [US 6,456,647 B1].

For claims 11, 22, 33, Menich, Iguchi, Matsui fail to teach the features for this claim.

Banister teaches the wherein said weighted sum scheme corresponds to the response of a first-order Infinite Impulse Response IIR filter or to the response of a Finite Impulse Response FIR filter [the antenna selection is based on the weight factor derived from simple, single tap, first order, IIR filter or the response of FIR, col. 7, lines 14-23 & col. 13, lines 24-34; it is well known that IIR filter or FIR filter is implemented in software code], in order to correctly decode a symbol [abstract]. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Menich, Iguchi, Matsui with Banister's IIR, FIR filter, such that the symbol could be correctly decoded.

Response to Argument

9. Applicant's arguments with respect to claims 1-8, 11-19, 22-30, 33, 36-50 have been considered but are moot in view of the new ground(s) of rejection.

Regarding applicant amendment is based on the argument of no teaching from the prior arts, for the selecting a starting antenna by using the majority polling scheme [pages 14-15 of applicant's amendment, 1/21/2008],

Iguchi et al. [US 6,839,550 B2] teaches the selecting a starting antenna by using the majority polling scheme

Art Unit: 2618

[the antenna selection of antenna ANT(K) is based on the majority decision, the greater number of times of an antenna being used previously for receiving than with the other antenna, steps S12 to S18 in Fig. 5, col. 5, lines 17-44; the selecting an optimum antenna from then number of antennas in col. 5, lines 40-44].

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Chow whose telephone number is (571) 272-7889. The examiner can normally be reached on 8:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system.

Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles Chow /C. C./
Examiner, Art Unit 2618
March 7, 2008.

/Edward Urban/

Supervisory Patent Examiner, Art Unit 2618